TOSHIBA Transistor Silicon NPN Triple Diffused Type

2SD2414(SM)

High Current Switching Applications

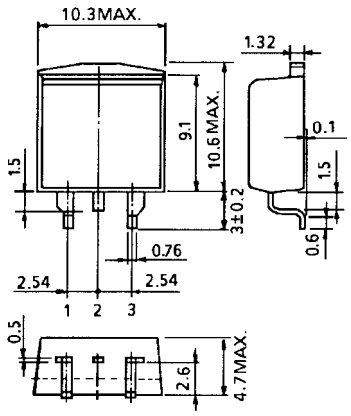
Power Amplifier Applications

- Low collector saturation voltage: $V_{CE\ (sat)}$ = 0.5 V (max) (at I_C = 4 A)

Maximum Ratings (Ta = 25°C)

Characteristics		Symbol	Rating	Unit
Collector-base voltage		V_{CBO}	100	V
Collector-emitter voltage		V_{CEO}	80	V
Emitter-base voltage		V_{EBO}	5	V
Collector current		I_C	7	A
Base current		I_B	1	A
Collector power dissipation	Ta = 25°C	P_C	1.5	W
	Tc = 25°C		40	
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	−55 to 150	°C

Unit: mm

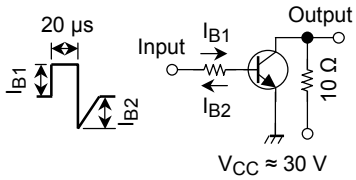


1. BASE
2. COLLECTOR (HEAT SINK)
3. EMITTER

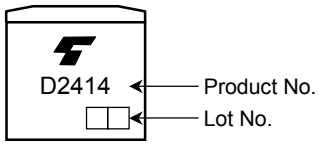
JEDEC	—
JEITA	—
TOSHIBA	2-10S2

Weight: 1.4 g (typ.)

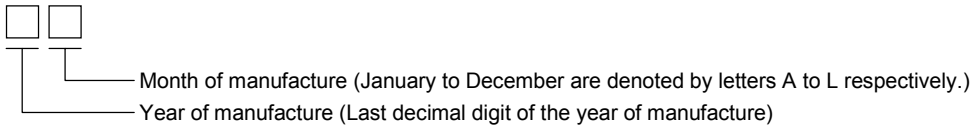
Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		I_{CBO}	V_{CB} = 100 V, I_E = 0	—	—	5	μA
Emitter cut-off current		I_{EBO}	V_{EB} = 5 V, I_C = 0	—	—	5	μA
Collector-emitter breakdown voltage		$V_{(BR)\ CEO}$	I_C = 50 mA, I_B = 0	80	—	—	V
DC current gain		$h_{FE\ (1)}$	V_{CE} = 1 V, I_C = 1 A	100	—	320	
		$h_{FE\ (2)}$	V_{CE} = 1 V, I_C = 4 A	30	—	—	
Collector-emitter saturation voltage		$V_{CE\ (sat)}$	I_C = 4 A, I_B = 0.4 A	—	0.25	0.5	V
Base-emitter saturation voltage		$V_{BE\ (sat)}$	I_C = 4 A, I_B = 0.4 A	—	0.9	1.4	V
Transition frequency		f_T	V_{CE} = 4 V, I_C = 1 A	—	10	—	MHz
Collector output capacitance		C_{ob}	V_{CB} = 10 V, I_E = 0, f = 1 MHz	—	200	—	pF
Switching time	Turn-on time	t_{on}		—	0.4	—	μs
	Storage time	t_{stg}		—	2.5	—	
	Fall time	t_f	I_{B1} = −I_{B2} = 0.3 A, duty cycle ≤ 1%	—	0.5	—	

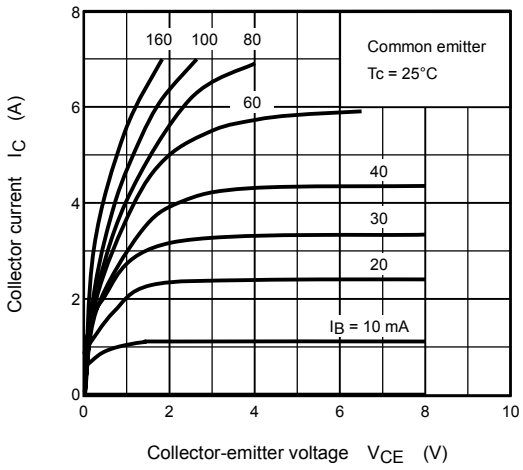
Marking



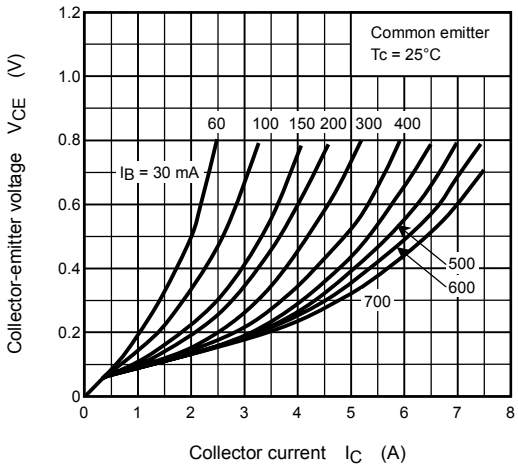
Explanation of Lot No.



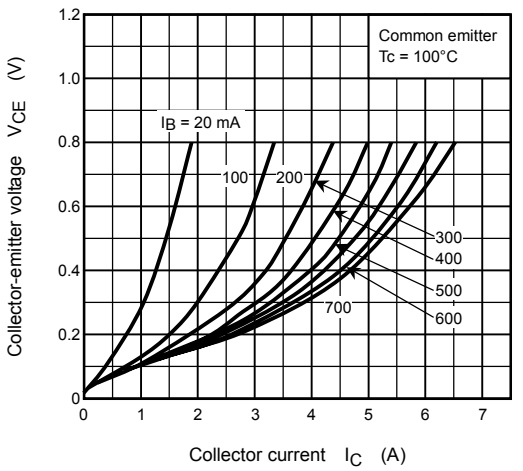
$I_C - V_{CE}$



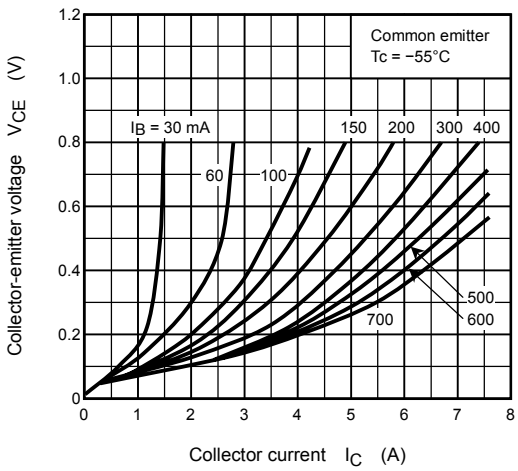
$V_{CE} - I_C$



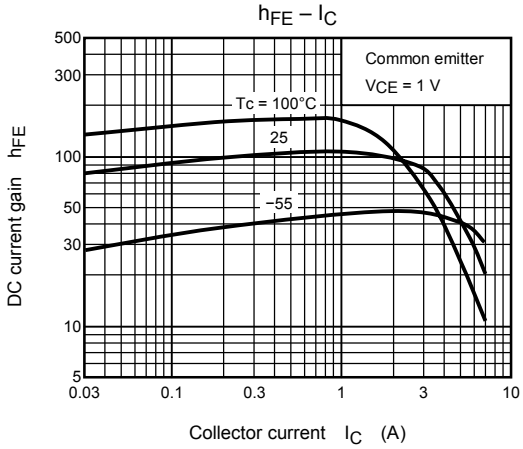
$V_{CE} - I_C$



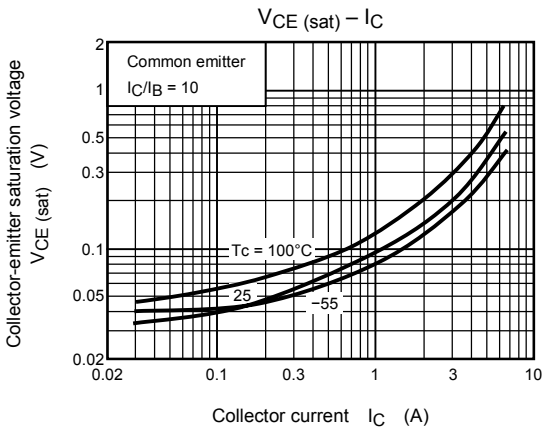
$V_{CE} - I_C$



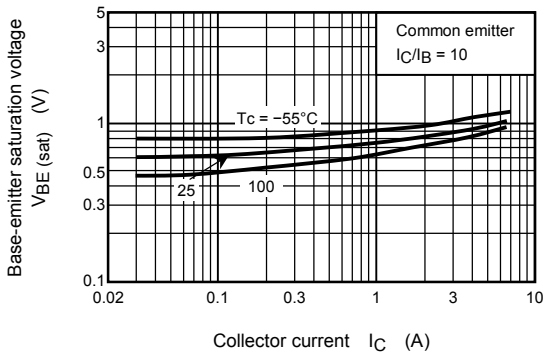
$h_{FE} - I_C$



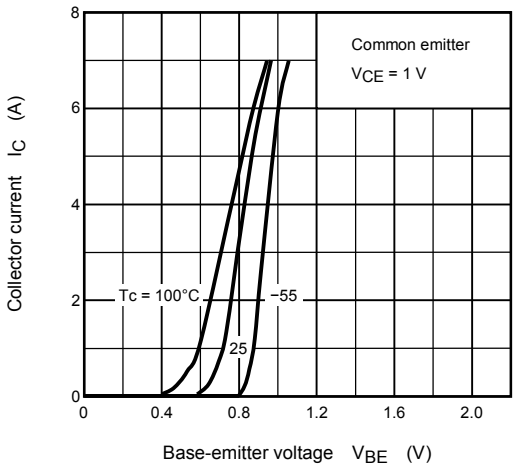
$V_{CE\ (sat)} - I_C$



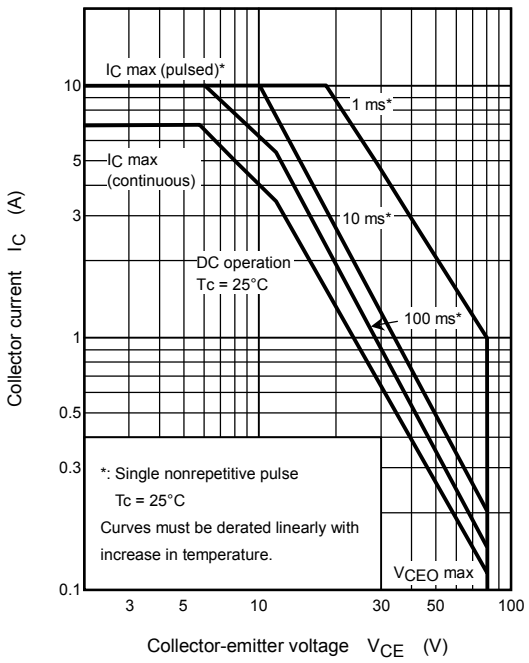
$V_{BE\ (sat)} - I_C$



$I_C - V_{BE}$



Safe Operating Area



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